

REMARKS

Applicants thank the Examiner for the thorough examination of the application.

Claims 1, 3-10, 12, 13, 15-18 and 21-25 are pending in this application. Claims 1, 10 and 25 are independent.

Claims 1, 3-10, 12, 13, 15-18 and 21-25 are amended. Reconsideration of the present application, as amended, is respectfully requested.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the Official File in view of the fact that the amendments to the claims automatically place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment reduces the issues on appeal by addressing the Examiner's objections to the claims and providing amendments overcoming the prior art of record. This Amendment was not presented at an earlier date in view of the fact that Applicants did not fully appreciate the Examiner's position until the Final Office Action was reviewed.

Drawings

Applicants have **still not** received a Notice of Draftsperson's Patent Drawing Review, Form PTO-948, or other indication of whether or not the formal drawings have been approved by the Official Draftsperson. It is respectfully submitted that the drawings comply with USPTO requirements. Clarification with the next official communication is respectfully requested.

Claim Objections

The Examiner objected to claims 21 and 23 due to minor informalities. In response to the Examiner's objection, Applicants have amended claims 21 and 23 to address the deficiencies specifically pointed out by the Examiner. Withdrawal of this objection is respectfully requested.

Rejection under 35 U.S.C. §103(a)

Claims 1, 3, 5, 6, 8, 10, 12, 15, 17 and 21-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,429,909 to Kim et al. (Kim) in view of U.S. Patent No. 6,313,889 to Song et al (Song). Claims 4, 7, 9, 13, 16 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kim in view of Song, and further in view of U.S. Patent No. 5,734,450 to Irie et al. (Irie). Claim 25 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kim

in view of Song and further in view of Cheng. These rejections, to the extent that they apply to the presently pending claims, are respectfully traversed.

While not conceding the appropriateness of the rejections, but merely to advance prosecution of the instant application, independent claim 1 has been amended to recite a combination of elements in a thin film transistor substrate in a liquid crystal display, including a gate line applying a gate signal, an extended portion of said gate line providing a gate dummy pattern parallel to said data line to overlap with at least one edge portion of said data line.

Independent claim 10 has been amended to recite a combination of elements in a thin film transistor substrate in a liquid crystal display, including an extended portion of said gate line providing a gate dummy pattern, parallel to said data line to overlap by about 0.5-1 μ m with an edge portion of said data line **and** an edge portion of said pixel electrode.

Independent claim 25 has been amended to recite a combination of elements in a thin film transistor substrate in a liquid crystal display, including a protruded portion of said gate line being disposed parallel to said data line to form a gate dummy pattern splitting off into first and second extension parts extending from said gate line in the first direction and separated from each other, said first extension part disposed below a first edge portion of said data line and a side portion of an adjacent pixel electrode, said second extension part disposed below a second

edge portion of said data line and a side portion of another adjacent pixel electrode, said first and second edge portions being opposite edge portions of said data line.

It is respectfully submitted that the combinations of elements set forth in independent claims 1, 10 and 25 are not disclosed or rendered obvious by the applied prior art of record, including Kim, Song, Cheng and Irie.

In particular, Kim discloses a horizontally disposed gate line 100 (see Fig. 6 of Kim). It appears plainly from Fig. 6 of Kim that gate line 100 does not extend in any direction except horizontal. In other words, gate line 100 of does not have any vertically disposed protrusions or extending parts and hence no extended portion parallel to a vertical data line. All portions of gate line 100 of Kim are horizontally disposed. While Kim teaches repair lines 110 and 120, these are not extensions of a gate line for applying a gate signal. While these repair lines appear to be made of the same metal as the gate lines and formed on the same layer as the gate lines, they are nevertheless **formed separately** from the gate lines (formed on either side of the gate lines). This is set forth clearly in col.2, lines 10-17 of Kim (referenced by the Examiner) and also shown in Figs. 15-20C. Therefore, the Applicants' claimed extended portions of a gate line are not present in Kim. With further respect to claim 25, Kim does not teach the extended portions splitting off.

Song, on the other hand discloses a structure utilizing a dual gate line layout. In Song, vertical portions 1a and 1b (auxiliary gate lines 1a and 1b) connect with the gate line to form a ring capacitor. However, the vertical portions 1a and 1b of Song

do not overlap with an edge portion of data line D of Song (see Fig. 19A). Rather, source electrode 7 protrudes outward from data line D to provide a connection point to gate line Gup, and connect portion 21 of data line D extends outward to provide a connection point for auxiliary gate line 1b. However, Fig. 19A of Song shows plainly that an edge of the data line D is not overlapped. Therefore Song, like Kim, fails to teach all of the elements of the Applicants' invention as recited above in the amended claims. These references should be withdrawn.

Further, Song and Kim are not combinable. Quite obviously, the array of Song utilizes a dual gate line structure. That is, every pixel has twice the number of gate lines as a conventional layout such as the layout of the device of Kim (Kim employs a single gate line structure). In other words, Kim discloses an arrangement featuring a single gate line intersecting with a single data line to define the boundaries of a pixel.

By contrast, the auxiliary gate lines of Song form a ring capacitor structure. These conflicting features making an operable combination even more unlikely, let alone a suggestion or motivation to make such a combination. Further, both references have specific concerns with their respective arrangements as they relate to values of storage capacitance. Applicants therefore submit that any combination of the devices of the references would require extensive modifications and are not likely to produce an operable device, which may be used for its intended purpose. Therefore, one of ordinary skill in the art would find no reason to employ the

complex dual gate line/ring capacitor structure of Song to effect that which is already addressed in a much simpler manner in Kim.

In view of the foregoing, it is respectfully submitted that the applied prior art of record, including Kim, Song, Cheng and Irie, fails to teach or suggest the combinations of elements set forth in independent claims 1, 10 and 25 (as amended). Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

Dependent Claims

With regard to dependent claims 3-9, 12, 13, 15-18 and 21-24, Applicants submit that claims 3-9, 12, 13, 15-18 and 21-24 depend, either directly or indirectly, from independent claim 1 and 10, which are allowable for the reasons set forth above, and therefore claims 3-9, 12, 13, 15-18 and 21-24 are allowable based on their dependence from claim 1 and 10. Reconsideration and allowance thereof are respectfully requested.

CONCLUSION

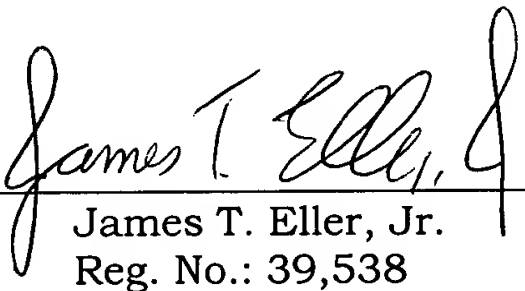
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

However, if there are any outstanding issues, the Examiner is invited to telephone Percy L. Square (Reg. No. 51,084) at (703) 205-8034 in an effort to expedite prosecution.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or to credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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